

IN THE SPECIFICATION

Please amend the term “ketjen black” to “KETJENBLACK™” to appropriately acknowledge the proprietary nature of the term.

On page 10, please replace the first full paragraph with the following amended paragraph:

To the anode mixture layer 9 is added a gas adsorbing carbon material, capable of adsorbing a gas evolved in the battery. The gas adsorbing carbon material is, for example, a carbonaceous material having a specific surface not less than 30 m²/g as measured by the BET method, and may be exemplified by carbon black, such as acetylene black or ~~Ketjen-Black~~ KETJENBLACK™, and activated carbon, having a specific surface generally on the order of 700 to 1600 m²/g. These materials may be used either singly or in combination.

On page 30, please replace the first full paragraph with the following amended paragraph:

A cathode was then prepared. In producing the cathode, 95 parts by weight of powdered LiCoO₂, as a cathode active material, 2 parts by weight of ~~Ketjen-Black~~ KETJENBLACK™, manufactured by LION CORPORATION, as an electrically conductive material, 3 parts by weight of PVdF as a binder, and NMP as a solvent, were mixed and kneaded together by a planetary mixer, for dispersion, in order to prepare a coating solution of the cathode mixture. Using a die coater as a coating apparatus, the coating solution of the cathode mixture was coated uniformly on each surface of a strip-shaped aluminum foil, 20μm thick, as a cathode current collector. The resulting product was dried in situ for 24 hours at 100°C under reduced pressure and molded under compression in a roll press to form a layer of the cathode mixture, which then was cut to a predetermined size. A cathode lead terminal of aluminum then was connected to the exposed cathode collector portions by ultrasonic welding. This completes an elongated cathode.

On page 33, please replace the second full paragraph, with the following amended paragraph:

In the sample 4, an anode was prepared in the same way as in the sample 1, except that ~~Ketjen-Black~~ KETJENBLACK™, with the specific surface as measured by the BET method equal to 800 m²/g, manufactured by LION CORPORATION, was used as a gas adsorbing

carbon material. A polymer battery was prepared in the same way as the sample 1, except that this anode was used in this sample 4.

On page 38, please replace Table 1, with the following amended table:

Table 1

	gas absorbing carbon material added to anode mixture layer			charging/ discharging efficiency (%)	swell due to high temperature storage (%)	battery temperature in over-charging (°C)
	type	specific surface (m ² /g)	amount addition (wt%)			
sample 1	acetylene black	30	0.5	78	180	90
sample 2	acetylene black	70	0.5	77	166	89
sample 3	acetylene black	130	0.5	78	141	90
sample 4	Ketjen Black <u>KETJENBLACK™</u>	800	0.5	77	120	88
sample 5	activated carbon	800	0.5	77	120	90
sample 6	acetylene black	130	0.1	79	180	90
sample 7	acetylene black	130	0.3	78	127	89
sample 8	acetylene black	130	1	77	118	91

sample 9	acetylene black	130	3	77	116	89
sample 10	acetylene black	130	5	76	114	89
sample 11	acetylene black	130	6	74	112	88
sample 12	-	-	-	78	316	70
sample 13	acetylene black	15	0.5	78	190	88
sample 14	acetylene black	130	0.05	78	230	89
sample 15	acetylene black	130	9	68	110	89

On page 43, please replace fourth full paragraph and continuing with second and third full paragraphs on page 44 with amended paragraphs:

In the sample 16, a cathode in which the gas adsorbing carbon material had been added at 0.2 wt% of the total weight of the entire cathode mixture layer was prepared in the same way as in sample 1, except preparing a coating solution of the cathode mixture by mixing 96.8 parts by weight of LiCoO_2 , 0.2 part by weight of ~~Ketjen-Black~~ KETJENBLACK™ with the specific surface of $800 \text{ m}^2/\text{g}$ as measured by the BET method, manufactured by LION CORPORATION, as a gas adsorbing carbon material/ electrically conductive material, 3 parts by weight of PVdF as a binder, and NMP as a solvent, subjecting the resulting mixture to dispersion and employing the so produced coating solution. A polymer battery, in which the gas adsorbing carbon material had been added only to the cathode mixture layer, was prepared in the same way as the sample 12 except that this cathode was employed in this sample 16.

In the sample 17, a cathode was prepared in the same way as in the sample 16, except that ~~Ketjen-Black~~ KETJENBLACK™ was added as a gas adsorbing carbon material at 0.5 wt% of the total weight of the entire cathode mixture layer. A polymer battery was prepared in the same way as in the sample 16, except that this cathode was employed in this sample 17.

In the sample 18, a cathode was prepared in the same way as in the sample 16, except that ~~Ketjen-Black~~ KETJENBLACK™ was added as a gas adsorbing carbon material at 1 wt% of the total weight of the entire cathode mixture layer. A polymer battery was prepared in the same way as in the sample 16, except that this cathode was employed in this sample 18.

On page 45, please replace paragraph one, with the following amended paragraph:

In the sample 19, a cathode was prepared in the same way as in the sample 16, except that ~~Ketjen-Black~~ KETJENBLACK™ was added as a gas adsorbing carbon material at 3.5 wt% of the total weight of the entire cathode mixture layer. A polymer battery was prepared in the same way as in the sample 16, except that this cathode was employed in this sample 19.

On page 45, please replace paragraphs three and four with the following amended paragraphs:

In the sample 21, a cathode was prepared in the same way as in the sample 16, except that ~~Ketjen-Black~~ KETJENBLACK™ was added as a gas adsorbing carbon material at 0.1 wt% of the total weight of the entire cathode mixture layer. A polymer battery was prepared in the same way as in the sample 16 except that this cathode was used in this sample 21.

In the sample 22, a cathode was prepared in the same way as in the sample 16, except that ~~Ketjen-Black~~ KETJENBLACK™ was added as a gas adsorbing carbon material at 4 wt% of the total weight of the entire cathode mixture layer. A polymer battery was prepared in the same way as in the sample 16, except that this cathode was employed in this sample 22.

On page 47, please replace the Table 2, with the following amended Table.

Table 2

	gas absorbing carbon material added to cathode mixture layer			charging/ discharging efficiency (%)	amount of swell due to storage at elevated temperatures (%)	battery temperature in over-charging (°C)
	type	specific surface (m ² /g)	amount addition (wt%)			
sample 16	Ketjen Black <u>KETJENBLACK™</u>	800	0.2	78	182	80
sample 17	Ketjen Black <u>KETJENBLACK™</u>	800	0.5	77	167	84
sample 18	Ketjen Black <u>KETJENBLACK™</u>	800	1	78	152	87
sample 19	Ketjen Black <u>KETJENBLACK™</u>	800	3.5	77	141	90
sample 20	-	-	-	40	450	70
sample 21	Ketjen Black <u>KETJENBLACK™</u>	800	0.1	77	195	77
sample 22	Ketjen Black <u>KETJENBLACK™</u>	800	4	80	150	≥200

On page 49, please replace the second, third and fourth paragraphs with the following amended paragraphs:

From the results of evaluation shown in Table 2, the charging/discharging capacity is appreciably larger and the amount of swell on storage under elevated temperatures is appreciably smaller in the samples 16 to 19 where ~~Ketjen-Black~~ KETJENBLACK™ is added in an amount not less than 0.2 wt% and not larger than 3.5 wt% than in the sample 20 where no ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material/ gas adsorbing carbon material is added.

In the sample 20, in which ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material/ gas adsorbing carbon material is not added to the cathode mixture layer, the cathode mixture layer is deteriorated in electrical conductivity, thus lowering the battery characteristics. Moreover, in the sample 20, in which no gas adsorbing carbon material is added to the cathode mixture layer, a gas is evolved due to heating and stored in the battery, thus increasing the battery thickness to a large extent.

From the results of evaluation shown in Table 2, the amount of swell caused by storage under elevated temperatures is smaller in the samples 16 to 19 than in the sample 21 where 0.1 wt% of ~~Ketjen-Black~~ KETJENBLACK™ is added to the cathode mixture layer.

On page 50, please replace paragraphs one, two, three and four with the following amended paragraphs:

In the sample 21, where the amount of addition of ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material/ gas adsorbing carbon material is 0.1 wt% of the total weight of the cathode mixture layer, such that the amount of ~~Ketjen-Black~~ KETJENBLACK™ added to the cathode mixture layer is small, the amount of the gas evolved on heating in the battery which is adsorbed to ~~Ketjen-Black~~ KETJENBLACK™ is also small. Thus, in the sample 21, the amount of the gas stored in the battery is large to increase the battery thickness.

From the results of evaluation shown in Table 2, it is also seen that the battery temperature at the time of over-charging is lowered appreciably in the samples 16 to 19 as compared to that of the sample 22 in which 4 wt% of ~~Ketjen-Black~~ KETJENBLACK™ is added to the cathode mixture layer.

In the sample 22, in which the amount of addition of ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material/ gas adsorbing carbon material is 4 wt% of the total weight of the cathode mixture layer, such that the amount of highly electrically conductive ~~Ketjen-Black~~ KETJENBLACK™ added to the cathode mixture layer is excessively large, the electrical conductivity of the cathode mixture layer is increased excessively due to the excess amount of ~~Ketjen-Black~~ KETJENBLACK™. The result is that the battery temperature is raised in case the battery is in the excessively charged state to render it difficult to maintain the battery safety.

In these samples 16 to 19, in contradistinction from the samples 20 to 22, the amount of addition of ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material/ gas adsorbing carbon material is moderate, being not less than 0.2 wt% and not larger than 3.5 wt%, so that it is possible to prevent the gas from being accumulated in the battery to achieve excellent battery characteristics and safety.

On page 51, please replace first full paragraph with the following amended paragraph:

It is seen from above that addition of ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material/ gas adsorbing carbon material in an amount not less than 0.2 wt% and not larger than 3.5 wt% of the total weight of the cathode mixture layer is highly effective in manufacturing a polymer battery in which the amount of swell due to storage at elevated temperatures is suppressed and the battery safety in over-charging is raised.

On page 51, please replace paragraph three with the following amended paragraph:

In the sample 23, a cathode in which a gas adsorbing carbon material was added at 0.2 wt% of the total weight of the entire cathode mixture layer was prepared in the same way as in sample 1, except employing a coating solution of the cathode mixture prepared by mixing and dispersing 94.8 parts by weight of LiCoO_2 , 2 wt% of ~~Ketjen-Black~~ KETJENBLACK™ as an electrically conductive material, 0.2 part by weight of activated carbon with the specific surface of $800 \text{ m}^2/\text{g}$ as measured by the BET method, manufactured by KANTO KAGAKU KK, as a gas adsorbing carbon material, 3 parts by weight of PVdF, as a binder, and NMP as a solvent. A polymer battery, in which the gas adsorbing carbon material is deposited only to the cathode mixture layer, was prepared in the same way as in the sample 12, except that this cathode was used in this sample 23.

On page 58, please replace third full paragraph with the following amended paragraph:

In the sample 31, an anode was prepared in the same way as in the sample 30, described above, except forming the gas adsorbing carbon layer on the exposed anode current collector portion, using ~~Ketjen-Black~~ KETJENBLACK™ with the specific surface as measured by the BET method of $800 \text{ m}^2/\text{g}$, as the gas adsorbing carbon material, manufactured by LION CORPORATION. A polymer battery, having the gas adsorbing carbon layer on the anode, was prepared in the same way as in the sample 1, except that this anode was used in this sample 31.

On page 60, please replace second full paragraph with the following amended paragraph:

In the sample 35, a cathode was prepared in the same way as in the sample 34, described above, except forming the gas adsorbing carbon layer on the exposed cathode current collector portion, using ~~Ketjen-Black~~ KETJENBLACK™ with the specific surface as measured by the BET method of $800 \text{ m}^2/\text{g}$, manufactured by LION CORPORATION, as the gas adsorbing carbon material. A polymer battery, having the gas adsorbing carbon

layer on the cathode, was prepared in the same way as in the sample 12, except that this anode was used in this sample 35.

On pages 63 and 64, please replace Table 4 with the following Table:

Table 4

	gas absorbing carbon layer		charging/ discharging efficiency (%)	swell on storage at high temperature (%)	battery over-charge
	sort of gas absorbing carbon layer	mounting position			
sample 30	acetylene black	exposed anode collector part	78	110	91
sample 31	Ketjen Black <u>KETJENBLACK™</u>	exposed anode collector part	79	101	91
sample 32	activated carbon	exposed anode collector part	77	101	89
sample 33	carbon tape	exposed anode collector part	77	176	90
sample 34	acetylene black	exposed cathode collector part	78	110	89
sample 35	Ketjen Black <u>KETJENBLACK™</u>	exposed cathode collector part	78	101	90
sample 36	activated carbon	exposed cathode collector part	78	101	88
sample 37	carbon tape	exposed cathode collector part	78	177	89
Sample 38	activated carbon	exposed anode collector part	78	100	90
	activated carbon	exposed cathode collector part			
sample 39	carbon tape	inner surface of exterior material	78	185	88
sample 12	-	-	78	316	70